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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,243	02/06/2004	John G. Carman	15740.005	8954

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EXAMINER

ROBINSON, KEITH O NEAL

ART UNIT	PAPER NUMBER
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1638

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,243

Applicant(s)

CARMAN, JOHN G.

Examiner

Keith O. Robinson, Ph.D.

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 13-20 and 29-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-20 and 29-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The amendments to claims 1, 13 and 29 and the specification, the cancellation of claims 11-12, 19-28 and 37-38 and the 'Declaration of John G. Carman' (henceforth referred to as the 'Carman Declaration'), filed December 23, 2005, have been received and entered in full.

Those rejections or objections not specifically addressed in this Office Action are withdrawn in view of Applicant's amendments.

Claims 1-10, 13-20 and 29-36 are pending.

Response to Arguments

2. Applicant's arguments, see page 8 of 'Remarks', filed December 23, 2005, with respect to the objection of the Declaration and the specification have been fully considered and are persuasive. The objection of the Declaration and specification has been withdrawn.

The 35 USC § 102(b) rejection of claims 11-12, 19-20 and 37-38 are moot in view of Applicant's cancellation of the claims in the 'Amendments to the Claims' filed December 23, 2005.

Claim Rejections - 35 USC § 112, first paragraph – Written Description

3. Claims 1-10, 13-20 and 29-36 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The rejection is repeated for the reasons of record as set forth in the Office Action mailed June 28, 2005, as applied to claims 1-20 and 29-38. Applicant's arguments filed December 23, 2005 have been fully considered but they are not persuasive.

Applicant argues that the test for whether a specification has met the written description requirements is whether the specification conveys with reasonable clarity to those skilled in the art that Applicant was in possession of the invention as claimed as of the filing date. Applicant further argues that an applicant shows possession of the claimed invention by describing the claimed invention using such descriptive means as word, structures, etc. Therefore, Applicant states that the amendment of the claims more specifically recite the steps of the invention (see pages 8-9 of 'Remarks' filed December 23, 2005).

This is not persuasive. The MPEP states that the written description requirement has several policy objectives. "[T]he essential goal' of the description of the invention requirement is to clearly convey the information that an applicant has invented the subject matter which is claimed." In re Barker, 559 F.2d 588, 592 n.4, 194 USPQ 470, 473 n.4 (CCPA 1977). Applicant has broadly claimed a method of producing any

angiospermous apomictic plant that exhibits an increased genetic stability for apomixis compared to any apomictic parent plant from which the apomictic plant is produced. The specification only describes the method using the angiospermous plants of *Antennaria*, *Tripsacum* and *Sorghum* (see page 26, line 19 to page 27, line 27). In addition, the Carman declaration also only describes the claimed invention using only *Antennaria*, *Tripsacum* and *Sorghum* (see pages 10-23).

Another objective is to put the public in possession of what the applicant claims as the invention. See *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1566, 43 USPQ2d 1398, 1404 (Fed. Cir. 1997), cert. denied, 523 U.S. 1089 (1998). The claimed invention does not put the public in possession of what the Applicant claims as the invention because the Applicant is broadly claiming the broad genus of angiospermous plants, but has only described the invention using *Antennaria*, *Tripsacum* and *Sorghum*, as stated above.

To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. See, e.g., *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed.Cir. 2003); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116. One of skill in the art cannot reasonably conclude that Applicant had possession of the claimed invention using every and all angiospermous plant as is broadly claimed. However, a showing of possession alone does not cure the lack of a

written description. *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, ²⁰⁰⁰323 F.3d 956, 969-70, <63 USPQ2d 1609, 1617 (Fed. Cir. 2002).

Applicant argues that the original disclosure teaches and provides examples of the presently claimed invention, for example in Figures 2-5 and Example 1 (see page 9 of 'Remarks' filed December 23, 2005).

This is not persuasive. Figure 2 simply shows megasporocyte and dyad of *A. umbrinella* and *A. racemosa*, Figure 3 shows the variation in female reproductive schedules among nine *Antennaria* spp., Figure 4 shows the duration of meiosis for 17 ecologically diverse sorghum land races, and Figure 5 shows the mean inner integument length at the dyad stage of meiosis for sorghum. None of these figures are an adequate written description for the broad genus of angiospermous apomictic plants.

Applicant argues that the disclosure teaches and provides examples of the step of increasing the genetic stability for apomixis of the facultatively apomictic parent plant produced in the first step (see pages 10-11 of 'Remarks' filed December 23, 2005).

This is not persuasive. The specification does not provide an adequate written description of the broad genus of facultatively apomictic parent plants. It only provides a written description for *Antennaria*, *Tripsacum* and *Sorghum* (see page 28, lines 10-32).

Applicant argues that Example 2 of the specification provides a working example of successfully increasing the genetic stability for apomixis in a facultative apomict (see page 11, 4th paragraph of 'Remarks' filed December 23, 2005).

This is not fully persuasive because this is not an adequate written description for the broad genus of facultative apomicts.

Applicant argues that the 1.132 declaration provides evidence of the effectiveness of the claimed method (see page 11, last paragraph of 'Remarks' filed December 23, 2005).

This is not persuasive. The Carman declaration only provides support for the invention using *Antennaria*, *Tripsacum* and *Sorghum* (see pages 10-23).

Claim Rejections - 35 USC § 112, first paragraph - Enablement

4. Claims 1-10, 13-20 and 29-36 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The rejection is repeated for the reasons of record as set forth in the Office Action mailed June 28, 2005, as applied to claims 1-20 and 29-38. Applicant's arguments filed December 23, 2005 have been fully considered but they are not persuasive.

Applicant argues that the amended claims have been narrowed and are not overly broad (see page 13 of the 'Remarks' filed December 23, 2005).

This is not persuasive. The claims are overly broad because they are drawn to any facultatively apomictic parent plant. The specification only provides evidence of use with *Antennaria*, *Tripsacum* and *Sorghum* (see page 28, lines 10-32).

Applicant argues the claimed invention relates to making hybrid plants and either doubling the chromosome numbers or preventing sexual reproduction and that these procedures are well known in the art (see pages 13-14 of the 'Remarks' filed December 23, 2005).

The Examiner did not address the nature of the invention and does not see how the argument is relevant to the arguments presented by the Examiner in the Office Action mailed June 28, 2005.

Applicant argues that the state of the prior art teaches that plant hybridization is well developed and known and that these well techniques can be used to produce the facultative apomictic plant using the claimed method (see page 14 of 'Remarks' filed December 23, 2005).

This is not persuasive. Though plant hybridization is well developed and known, it would require undue trial and error experimentation to determine which, if any, of the broad genus of sexual plants from an angiospermous plant species, genus, or family could be used in producing a facultatively apomictic parent. In addition, the Examiner did not address the state of the prior art and does not see how the argument is relevant to the arguments presented by the Examiner in the previous Office Action.

Applicant argues that the level of skill of a person of ordinary skill in the art is relatively high; therefore allowing a person of ordinary skill in the art would know how to (1) select plants for a plant breeding experiment; (2) conduct embryological analyses of plants identifying initiation of embryo sac formation, developmental maturity of the nongametophytic ovule and ovary tissues; (3) hybridize selected sexual plant lines by plant breeding; (4) recover seed from the hybridization, sow and raise plants from the seed; (5) identify facultatively apomictic progeny; (6) chromosome doubling; (7) BIII hybridization; and (8) introgressing meiotic mutations.

This is not persuasive. It would require undue trial and error for one of ordinary skill in the art to (1) select plants for a plant breeding experiment; (2) conduct embryological analyses of plants identifying initiation of embryo sac formation, developmental maturity of the nongametophytic ovule and ovary tissues; (3) hybridize selected sexual plant lines by plant breeding; (4) recover seed from the hybridization, sow and raise plants from the seed; (5) identify facultatively apomictic progeny; (6) chromosome doubling; (7) BIII hybridization; and (8) introgressing meiotic mutations for the broad genus of sexual plants from an angiospermous plant species, genus, or family could be used in producing a facultatively apomictic parent to determine which, if any, would work.

Applicant argues that the claimed invention is not unpredictable because the procedures used in the claimed invention are well known in the art (see pages 15-17 of the 'Remarks' filed December 23, 2005).

This is not persuasive. The Examiner has provided evidence of the unpredictability of producing apomictic plants (see pages 10-13 of the previous Office Action mailed June 28, 2005) and Applicant has not provided any evidence to overcome such evidence.

Applicant argues that the specification provides working examples of increasing the genetic stability for apomixis in a facultative apomict and that the Carman declaration also provides evidence (see page 19 of the 'Remarks' filed December 23, 2005).

This is persuasive; however, both the specification and the Carman declaration provide working examples for the use of *Antennaria*, *Tripsacum* and *Sorghum* (see page 28, lines 10-32 of the specification and pages 10-23 of the Carman declaration).

Applicant argues that quantity of experimentation needed would be merely routine (see page 19 of the 'Remarks' filed December 23, 2005).

This is not persuasive. As stated in the previous Office Action mailed June 28, 2005, page 13, the invention as claimed would require undue experimentation given the unpredictability of producing apomictic plants, the unpredictability of stabilizing apomixis in plants, the unpredictability of crosses between sexual lines and apomictic lines, the breadth of the claims, the lack of guidance regarding the broad genus of facultatively apomictic parent plants, the absence of working examples of the invention

regarding the broad genus of facultatively apomictic parent plants, and the unpredictability of chromosome doubling.

Claim Rejections - 35 USC § 102/103

5. Claims 1-10, 13-18 and 29-36 remain rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lutts et al. The rejection is repeated for the reasons of record as set forth in the Office Action mailed June 28, 2005. Applicant's arguments filed December 23, 2005 have been fully considered but they are not persuasive.

Applicant argues that Lutts et al teach hybridization of two known apomictic species and that the claimed invention teaches the identification and hybridization of plants that have divergent reproductive schedules of ovule development in order to produce an apomictic hybrid parent plant. Applicant further argues that Lutts et al do not teach or suggest increasing the genetic stability of the apomictic plant after it is produced (see page 20, 4th and 5th paragraphs of 'Remarks' filed December 23, 2005).

This is not persuasive. Lutts et al teach a method of producing an angiospermous apomictic plant with increased genetic stability for apomixis by hybridizing sexual angiospermous plants and doubling the chromosome number of the apomictic parent, as stated on page 15 of the previous Office Action mailed June 28, 2005. Lutts et al also teach the use of fertile apomictic F1 hybrids as a pollen parent in backcrossing (see page 19, 1st column, 2nd paragraph). The hybridizing of

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angiospermous plants having divergent reproductive schedules of ovule development would have been obvious to one of ordinary skill in the art. It would be no different than hybridizing plants that had different maturity classes or different flower color. The teaching of Lutts et al provide the steps, motivation and reasonable expectation of success as discussed on pages 15-16 of the previous Office Action mailed June 28, 2005.

Conclusion

6. No claims are allowed.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith O. Robinson, Ph.D. whose telephone number is

571-272-2918. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

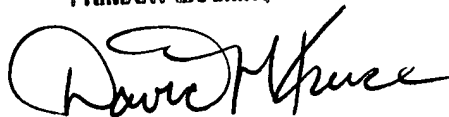
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Keith O. Robinson, Ph.D.

March 15, 2006

DAVID H. KRUSE, PH.D.
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "David H. Kruse", written over the printed name and title.